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## OPPORTUNISTIC FEEDING IN *SCELOPORUS HORRIDUS* FROM JALISCO, MEXICO

Philip A. Medica<sup>1</sup> and Rudolf G. Arndt<sup>2</sup>

**ABSTRACT.**—Based on a sample of 17 adult specimens of *Sceloporus horridus* taken near Autlan, Jalisco, Mexico in May 1974 just before and just after the first rainfall of the year, we present the first published data on the food habits of this lizard. Important prey item taxa were Homoptera, Coleoptera, Hymenoptera, Orthoptera, and Isoptera. The absence of Homoptera and Orthoptera, and the concomitant greater relative importance of Isoptera and Hymenoptera in the diet after the rain than before indicates opportunistic feeding by *S. horridus*. Our data suggest that reproduction in this lizard is probably initiated soon after the first rains in late spring.

In May 1974 we made several small collections of amphibians and reptiles in the vicinity of Autlan, Jalisco, Mexico. The noteworthy specimens collected have been reported elsewhere by Medica, Arndt, and Dixon (1975). Here we report the results of a food habits study based on a sample of 17 sexually mature *Sceloporus horridus* obtained some 10 km SE of Autlan just prior to and just after the first rainfall of the year. Reproductive condition was also noted at the time of autopsy.

### METHODS AND MATERIALS

On 15 and 16 May 1974, just prior to the first rainfall of the year and after a period of about seven months without precipitation, we collected by noosing six specimens of *S. horridus* sunning themselves on fence row posts on the edges of fallow agricultural fields. The area is at an elevation of 945 m near a thorn forest. On 19 May, after a heavy rain the evening before, we took 11 more lizards in the same manner and at the same locality for the purpose of comparing food items. All lizards were preserved in 10 percent formalin within three hours of capture.

Lizard stomachs were later removed and the total volume of the contents determined by measuring the displacement of water in a graduated centrifuge tube. The contents were then identified to order and, when possible, to family and the volume of each taxon estimated to the nearest hundredth of a milliliter.

Specimens are deposited at Brigham Young University (BYU 41476-41486) and at the National Museum in Mexico City.

### RESULTS AND DISCUSSION

A greater variety of food was found in the sample of lizards obtained prior to the first rainfall than after (Table 1). Homoptera were represented in stomachs by the greatest percent volume (22.0 percent), but this taxon ranked relatively low (16.6 percent) in percent frequency. The comparatively large volume of Homoptera resulted from a large cicada in one lizard. Coleoptera were found in the greatest percent frequency (83.3 percent), and this order ranked third (15.6 percent) in percent volume. Hymenoptera (Formicidae) were also an important prey group and ranked second (18.7 percent) in percent volume and second (50.0 percent) in percent frequency. Orthoptera and Isoptera (Rhinotermitidae) both were relatively important in percent frequency (33.3 percent), and the former made up 15.3 percent of the percent volume while the latter comprised 1.8 percent. Diptera and Lepidoptera were minor prey. The relatively large percent volume (9.5 percent) of plant material was due primarily to a large piece of woody material found in one stomach. This was probably ingested incidental to arthropod prey.

After the rain the stomachs contained no Orthoptera or Homoptera. Hymenoptera (ants) were found in the greatest percent frequency of occurrence (81.8 percent) and ranked second (21.4 percent) in percent volume. Isoptera (winged forms) were the largest in percent volume (48.4 percent) and second (72.7 percent) in percent frequency. Diptera were a much more common prey group now in terms of both percent volume and percent frequency than before the rain, while coleopterans, which were important

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TABLE 1. Stomach analysis of 17 *Sceloporus horridus* taken before and after the first rainfall of the year from the vicinity of Autlan, Jalisco, Mexico. V is the volume of the stomach contents (ml), %V is the percent volume, and %F is the percent frequency of occurrence.

Order	May 15-16, 1974 Before rain			May 19, 1974 After rain		
	V	%V	%F	V	%V	%F
Orthoptera	.70	15.3	33.3	.....	.....	.....
Isoptera						
Rhinotermitidae	.08	1.8	33.3	2.28	48.4	72.7
Homoptera	1.00	22.0	16.6	.....	.....	.....
Coleoptera	.71	15.6	83.3	.31	6.6	36.4
Lepidoptera	.30	6.6	16.6	.10	2.1	9.1
Diptera	.39	8.6	16.6	.89	18.9	72.7
Hymenoptera						
Formicidae	.85	18.7	50.0	1.01	21.4	81.8
Other						
Unident.	.....	.....	.....	.06	1.3	9.1
Plant	.43	9.5	50.0	.06	1.3	9.1
Stones	.09	2.0	16.6	.....	.....	.....
Totals	4.55	100.1		4.71	100.0	

before the rain were now comparatively much less so.

These data indicate that *S. horridus* was an opportunistic feeder, primarily on the large numbers of winged termites which became active and thus available to the lizards immediately after the rain. Opportunistic feeding in *Sceloporus* has been noted by Tanner and Krogh (1973) in *S. magister*, Tanner and Hopkin (1972) in *S. occidentalis longipes*, Burkholder and Tanner (1974) in *S. g. graciosus*, Johnson (1965) in *S. o. occidentalis*, and Toliver and Jennings (1975) in *S. undulatus tristichus*.

The staple food for many *Sceloporus* is Hymenoptera as this taxon was found to rank high in percent frequency or numbers and/or percent volume in the following species: *S. g. graciosus* (Pack 1921; Knowlton and Janes 1932, 1933; Knowlton 1934; Knowlton and Thomas 1934; Knowlton, Maddock, and Wood 1946; Knowlton 1953; Burkholder and Tanner 1974); *S. g. gracilis* (Stebbins and Robinson 1946); *S. magister* (Knowlton 1934; Knowlton and Thomas 1934; Johnson 1966; Parker and Pianka 1973; Tanner and Krogh 1973); *S. occidentalis* (Johnson 1965; Tanner and Hopkin 1972; Clark 1973); *S. olivaceus* (Kennedy 1956); *S. poinsetti* (Knowlton 1948; Smith and Milstead 1971); *S. torquatus* (Stanton and Conzelmann 1975); and *S. undulatus* (Burt 1928; Knowlton 1934; Knowlton and Thomas 1934; Dixon and Medica 1966; Johnson 1966; Toliver and Jennings 1975). In many of the above

studies Coleoptera ranked second in importance. Isoptera were found to be of little importance as food when large samples of lizards taken over long periods of time were analyzed, except in *S. u. tristichus* where termites comprised 34 percent of the food by frequency and 22.2 percent by volume (Toliver and Jennings 1975).

The six females (mean snout-vent length 72.3 mm, range 58-82 mm) taken on 15, 16, and 19 May were probably pre-reproductive. The numerous yolked follicles they contained were relatively small in size (maximum diameter 2 mm or less). The enlarged testes of the 11 males (mean s-v length 81.5 mm, range 70-107 mm) indicated the onset of reproductive readiness. These observations suggest that reproduction in *S. horridus* near Autlan probably does not begin until the initiation of the rainy season. Marion and Sexton (1971) observed in the montane *S. malachitichus* in Costa Rica that the first yolked follicles appeared early in the wet season and that testes size and testicular activity of the male were at their peak at this time.

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